Moxa SoftNVR-IA™ IP Surveillance Software User's Manual

First Edition, February 2010

www.moxa.com/product

Moxa SoftNVR™ IP Surveillance Software Quick Installation Guide

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Product Information

Overview

SoftNVR-IA is a 32-channel IP surveillance software for industrial applications. The key feature of SoftNVR-IA is built in OPC server, which can direct communicate with industrial automation system, such as SCADA, HMI, etc.. The video recording and alarm handling are not only able to be triggered by the events being supported by SoftNVR-IA (ex. Digital Input, Video Loss), but also the events in automation system, which enhances the system intelligence. Most of important, it provides the unlimited capability for the integration of IP surveillance system with automation system for the industrial system integrator.

Features

OPC Communication

- Can receive event tags sent from the automation system to trigger video recording and other actions
- Can send event tags to the automation system with system information and the status of each channel

Live View

- Supports 1, 4, 6, 9, 10, 13, 16, 25, 32 live display, as well as video rotate and full screen display
- Supports MJPEG, MPEG4, and H.264 video streams (only supports VPort models, excluding the VPort 2000 series and VPort 3310)
- Supports up to 32 channels in the camera list
- Easy-to-use with drag and drop video display selection
- Can provide snapshot images in JPEG format
- Supports image tuning, including brightness, saturation, contrast, and hue
- Supports 2-way audio for voice communication between field sites and the control center
- Supports dual monitor and full screen display
- Supports display screen rotation
- Supports the PTZ control panel defined in VPort products

Video Record

- Video recording can be triggered manually or by event
- Video files are in AVI format, and can be played back on all popular media players (requires SoftNVR-IA codec)
- Supports the FIFO recycle function for long time video recording
- Can configure the number of days recorded video files will be stored

- Supports pre-event video recording for up to 30 seconds
- The storage hard disk can be selected from network hard drives

Playback and Search

- Can play back up to 4 recorded videos simultaneously
- Supports timeline selection when in video playback mode
- Supports stop, speed up, slow down, rewind frame-by-frame, and forward frame-by-frame
- Search video records by camera, time, or event
- Can take snapshot images when in video playback mode

Schedule

- Can set up a weekday schedule
- Schedule settings can be based on camera and event

Alarm Event

- arm events: Digital input and Video Loss
- Can accept events from the automation system via OPC communication
- Alarm triggered actions: popup display, go preset, play sound, trigger DO (relay)

System

- Automatically search or manually detect the IP address of a video device on the LAN
- Can configure the server name•
- Can configure multiple email addresses for receiving alarm messages
- Folder and file names of snapshot images can be customized
- Language version: English, Traditional Chinese, Simplified Chinese

Recommended System Requirements

- Intel Core 2 Duo QX6700 or above
- 2GB RAM or above
- Windows XP with SP3
- Motherboard: Intel 945 or 965 chip, Intel chipset recommended•
- Display card: nVIDIA GeForce GT210 or above (dual monitor requires 2 output)

Video performance reference

Based on the above recommended system requirment, we provide the video performance we tested in our lab for the reference. The total FPS dispalyed (frames per second) means the total FPS we tested in the given video channels, which each video channel is in 30FPS video streams, and monitor display. For the video recording, all the video streams are still in 30FPS, but the display capability is infludenced by the PC recource limitation.

Video Channels	Monitor Display	Total FPS displayed in Full D1 (720x480) resolution		Total FPS displayed in CIF (352x240) resolution	
		MPEG4	H.264	MPEG4	H.264
16 channels	Single Monitor	440	330	480	400
	Dual Monitor	440	300	460	400
20 channels	Single Monitor	525	325	600	515
	Dual Monitor	455	365	580	485
25 channels	Single Monitor	Not recommend	Not recommend	750	650
	Dual Monitor			715	635
32 channels	Single Monitor			885	800
	Dual Monitor			805	775

NOTE The system requirements listed above are the recommendation for running Softener-IA smoothly. For better video performance, such as when viewing and recording video images, use a hardware environment with a better video card, more memory, and better computing power.

NOTE It is not recommended to display the full D1 (720x480 or 720x576) in 25 or 32 channels simultaneously. If to display the 25 or 32 channels video simultaneously in Full D1 resolution is a must, it is required to low down the FPS of each VPort, or the video display will be abnormal. For example, if there are 25-channel videos need to be displayed in the same time with Full D1 resolution, each video stream must be down to 455÷25 ≒ 18 FPS or below.

SoftNVR-IA Package Contents

- Software CD (inlcudes user's manual)
- USB Key Pro

Release Notes

SoftNVR-IA

Version 1.0

Date 2010/2/28

Release Note

- Newly released

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SoftNVR-IA™ Installation

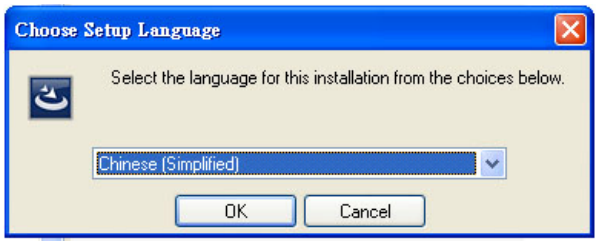
Before Installing the Software

1. Make sure your PC has DirectX 9.0C or above installed.

Starting the Installation

Step 1: Insert the Installation CD.

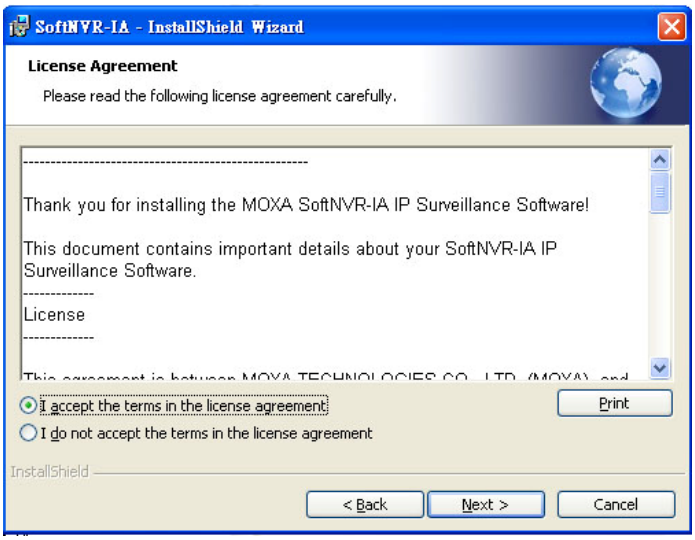
Step 2: Run SoftNVR-IA_Vxx.exe from the CD-ROM directory to install. A Language Selection table will pop up. Select the language you want to install for SoftNVR.



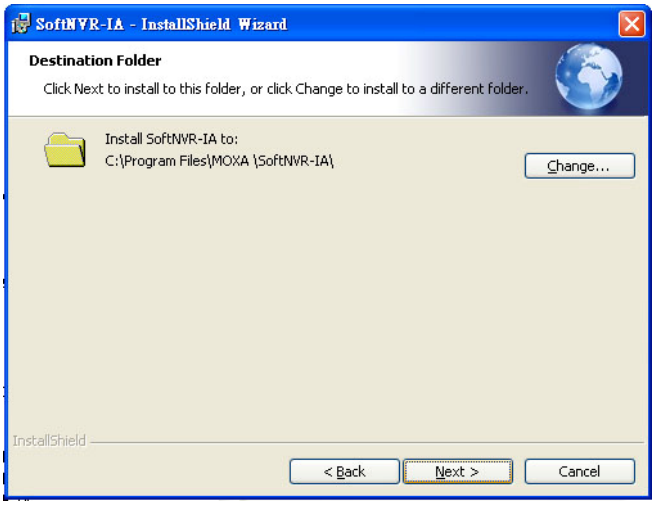
ATTENTION

SoftNVR-IA V1.0 supports 3 languages, including **English, Traditional Chinese, and Simplified Chinese.** If there is any other language requirement, please contact with Moxa's sales representative.

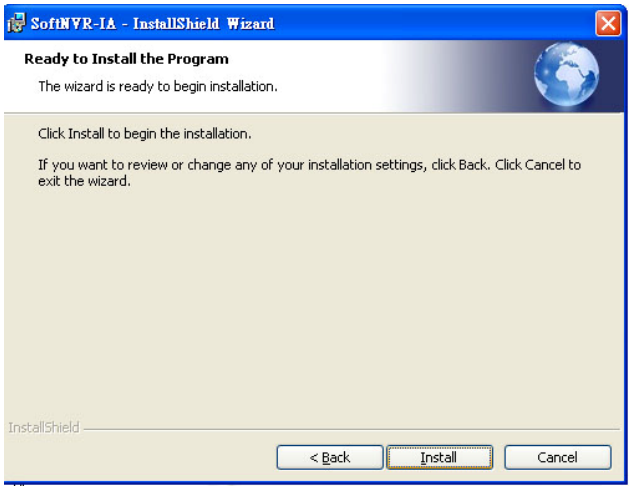
Step 3: Select "I accept the terms of the license agreement" and click **Next** to continue.

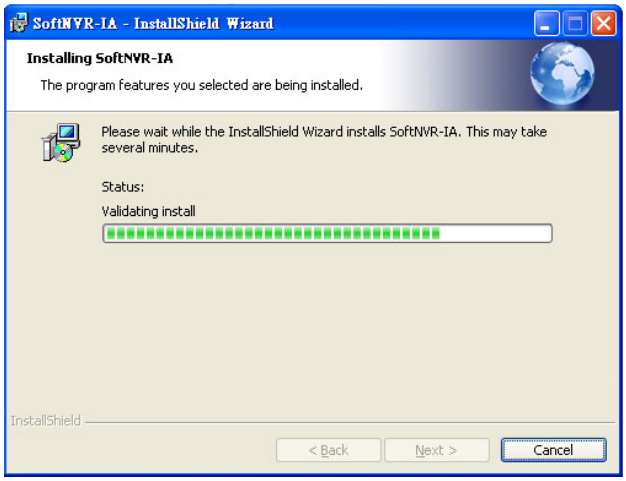


Step 4: Select the installation folder.

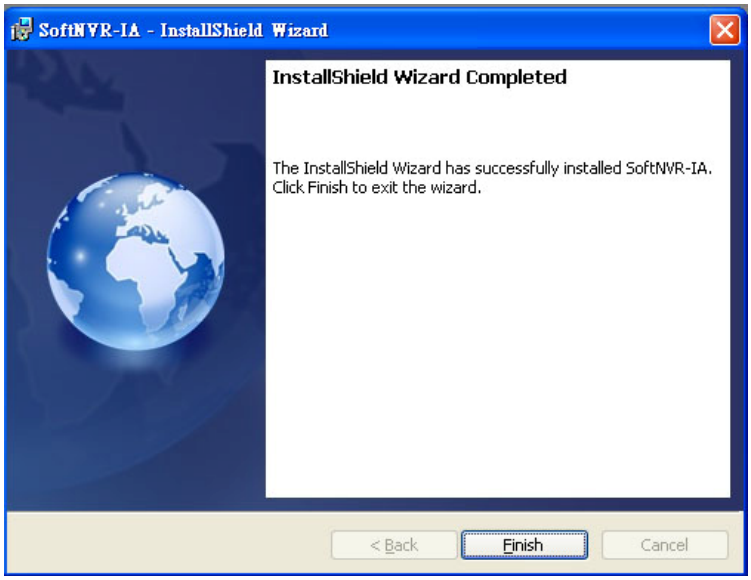


Step 5: Click on the Install to start the installation.





Step 6: Finish the installation process by clicking the Finish



Step 7: Check the MOXA SoftNVR-IA folder in the Program list. There are 3 programs: SoftNVR-IA live viewer, SoftNVR-IA Playback, and Uninstall SoftNVR-IA. If there is any one missed, please redo the installation process again.

NOTE	To uninstall the SoftNVR-IA, just run the Uninstall SoftNVR-IA, or the Softener-IA_Vxx.exe again, and follow the instruction for the removing the SoftNVR-IA.

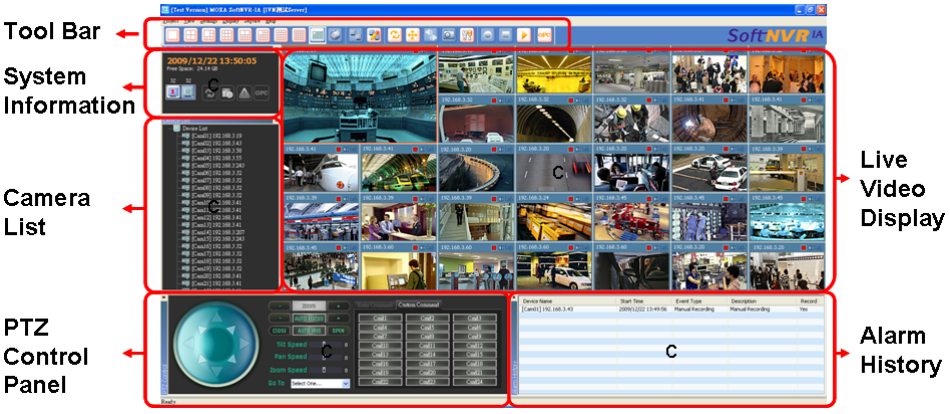
USB KEY Pro

The “Key Pro” located in your CD box must be plugged into your computer’s USB port to enable SoftNVR-IA to operate correctly. The driver is automatically installed when installing SoftNVR-IA.

NOTE The USB Key Pro protects the SoftNVR-IA license and does not influence the normal function of the PC or server.

NOTE If there is no USB Key Pro being used with SoftNVR-IA, then it will be closed after 3-hour execution.

SoftNVR-IA Live Viewer



Tool bar

Live video display control

Dual monitor control

Video record control

Take snapshot image

Open playback window

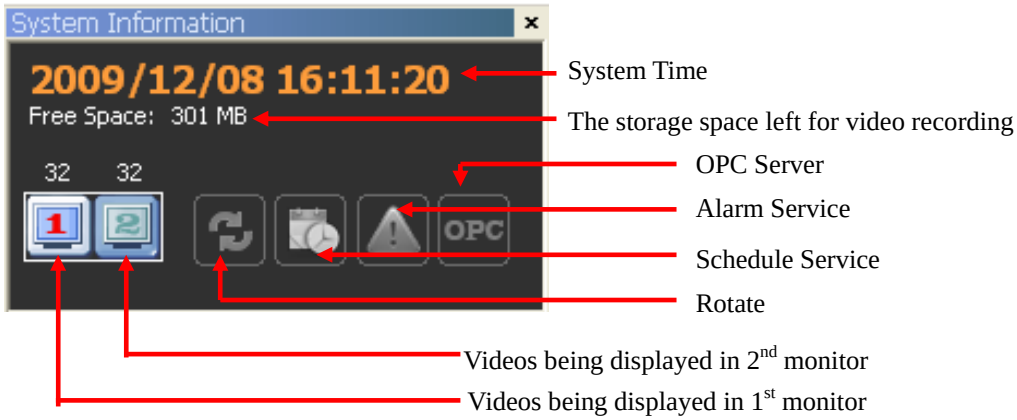
Start OPC server

Open E-map (supported after V1.1)

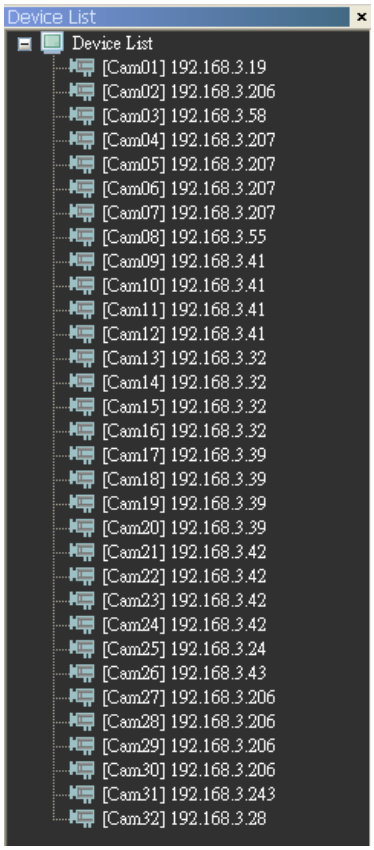
Enable audio (supported after V1.1)

NOTE Here is an example to show how the Rotate function works:
When there is 7 videos,
1-screen display: 1➔2➔3➔4➔5➔6➔7➔1➔2➔3….
4-screen display: 1+2+3+4➔5+6+7➔1+2+3+4➔5+6+7➔….
6-screen display: 1+2+3+4+5+6➔7➔1+2+3+4+5+6➔7➔….
9-screen display: 1+2+3+4+5+6+7➔1+2+3+4+5+6+7➔…

System information

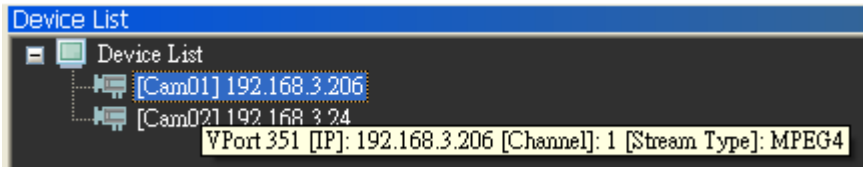


Camera List



There are maximum 32 cameras can be listed in the camera list.

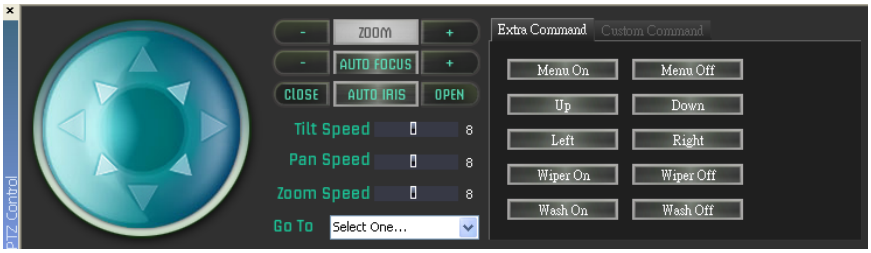
Move the mouse curser to the selected camera, and then a tooltip will be showed with model name, IP address, channel number and stream type.



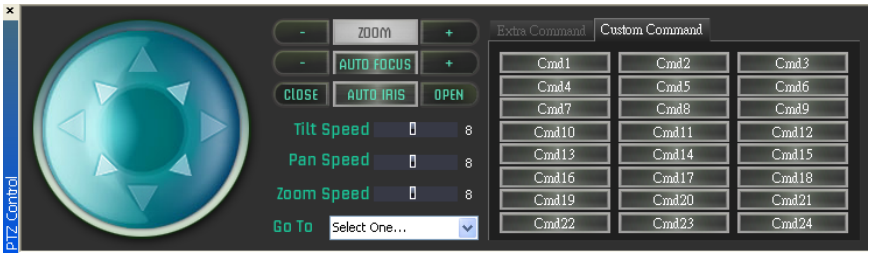
PTZ Control Panel

SoftNVR-IA's PTZ control commands are as same as VPort's PTZ control commands.

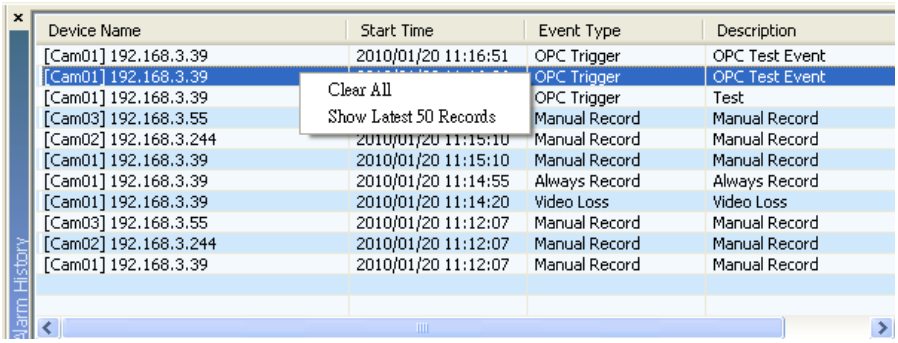
PTZ control with extra commands



PTZ control with custom commands



Alarm History

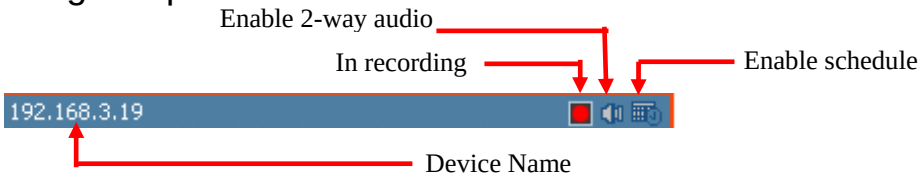


This alarm history shows the events SoftNVR-IA has. The maximum number of events in this alarm history is 500. Click on the right button of mouse will popup a menu for clearing all the alarms (Clear All) and showing the latest 50 alarms (Show Latest 50 Records).

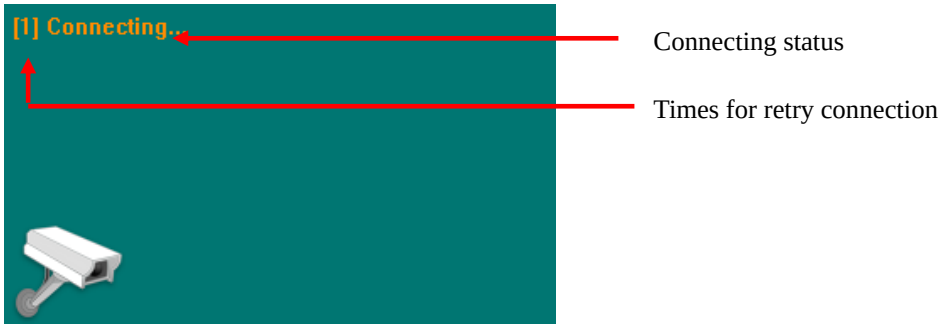
Live Video Display

To display the video on the live video display area, just drag & drop the selected camera from the camera list.

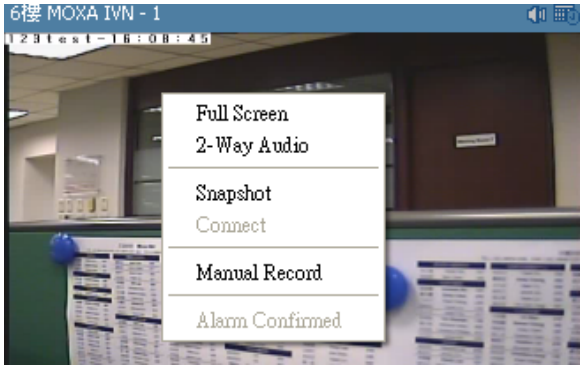
Image Caption



Device Connection



Popup menu



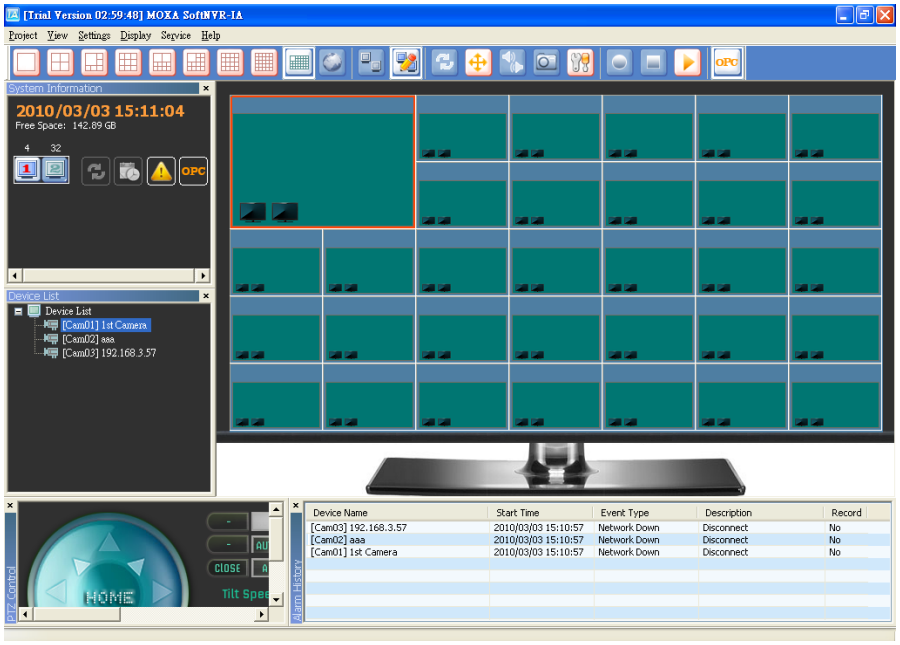
Right click on the image, a menu will be popup.

- **Full Screen:** Change to full screen display
- **2-Way Audio:** enable the 2-way audio
- **Snapshot:** take the snapshot image
- **Connect:** when the retry connection is failed after 5 times retry, select this function will re-start the retry connection.
- **Manual Record:** enable or disable the video recording manually. But once the schedule is enabled, the Manual Record will not be used..
- **Alarm Confirmed:** Once an alarm is happened, then the image frame will be flashed in red. Use this Alarm Confirmed to manually stop the event alarm and also the flash red frame.

NOTE Once an alarm is happened in SoftNVR-IA, it can only be disabled via Alarm Confirmed function.

Dual Monitor Display

SoftNVR-IA supports the dual monitor display for different video applications purpose. The user can click on the Dual Monitor Editor button in the Tool Bar to edit the 2nd monitor's video display. Use he drag & drop to configure the video cameras being displayed in the 2nd monitor.

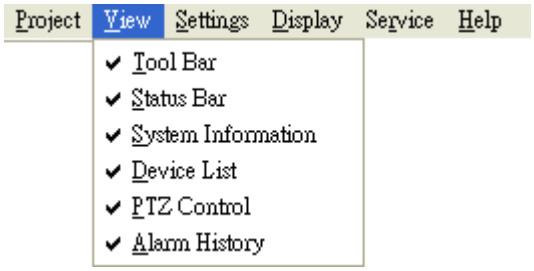


Menu

Project

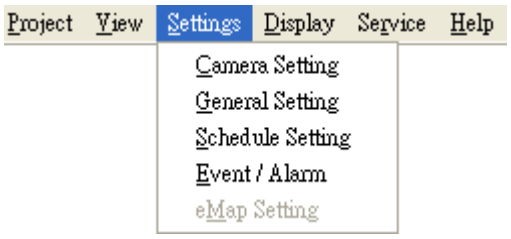
- Logout: logout the SoftNVR-IA (supported after V1.1)
- Exit: close SoftNVR-IA

View



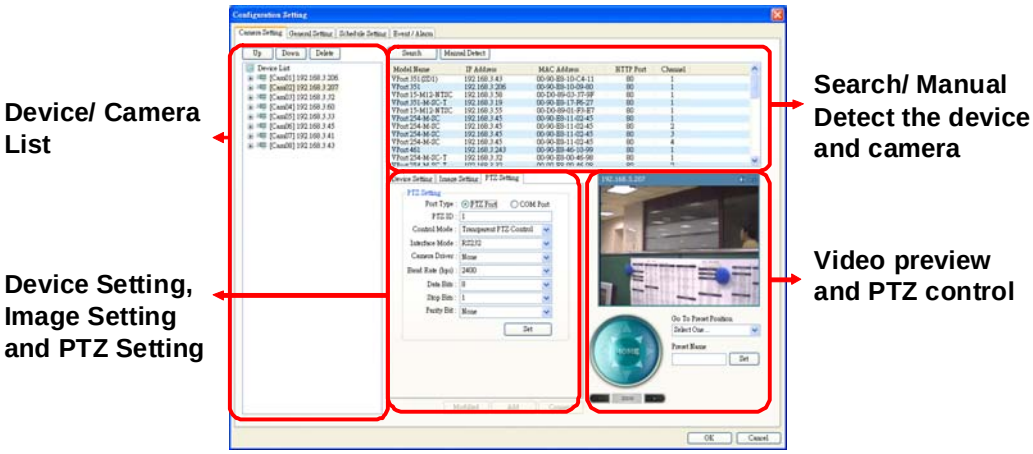
Show or hide the Tool Bar, Status Bar, System Information, Device List, PTZ Control and Alarm History

Settings



Camera Setting

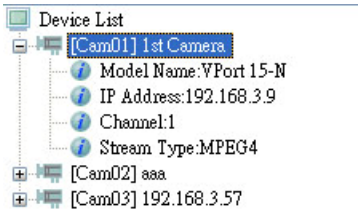
To add, delete and edit the device list.



- **Search and Manual Detect the device and camera:** to add a camera, use the Search or Manual Detect button to detect the VPort devices in the LAN.

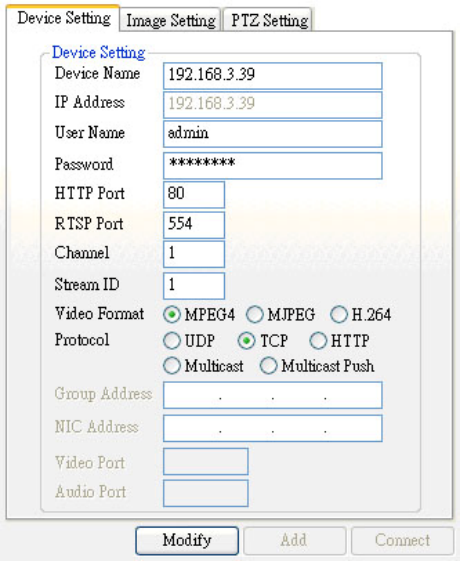
NOTE The SoffNVR-IA only supports Moxa VPort series product, but not include VPort 2110, Vprot 2310, VPort 2140, VPort 2141 and VPort 3310.

- **Video preview and PTZ control:** Select one VPort device in the device list or the device being searched or manually detected, then its video can be previewed here and the PTZ control can also be tested.
- **Device/ Camera List:** this list shows the devices or cameras in the device list. Click on each camera's ⊞, the device's model name, IP address, channel number and streaming type will be showed.

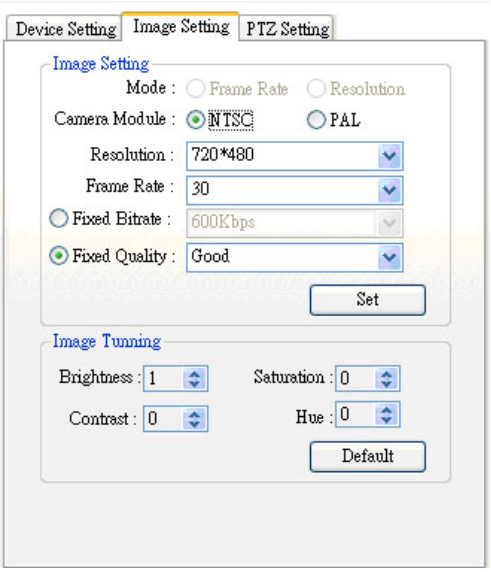


- **Device Setting, Image Setting and PTZ Setting:**

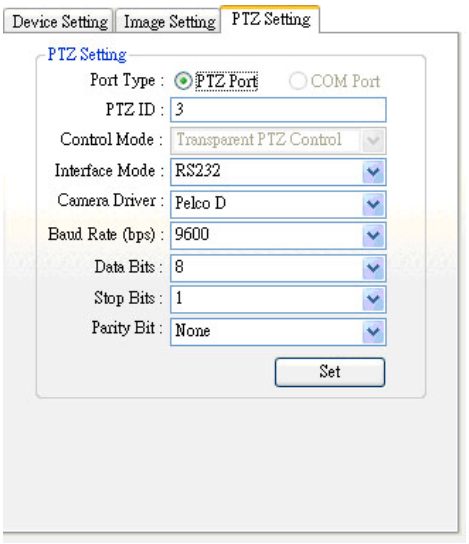
  - **Device Setting:** These settings are as same as VPort's settings, which means the VPort device's settings will be updated once you modify these settings.



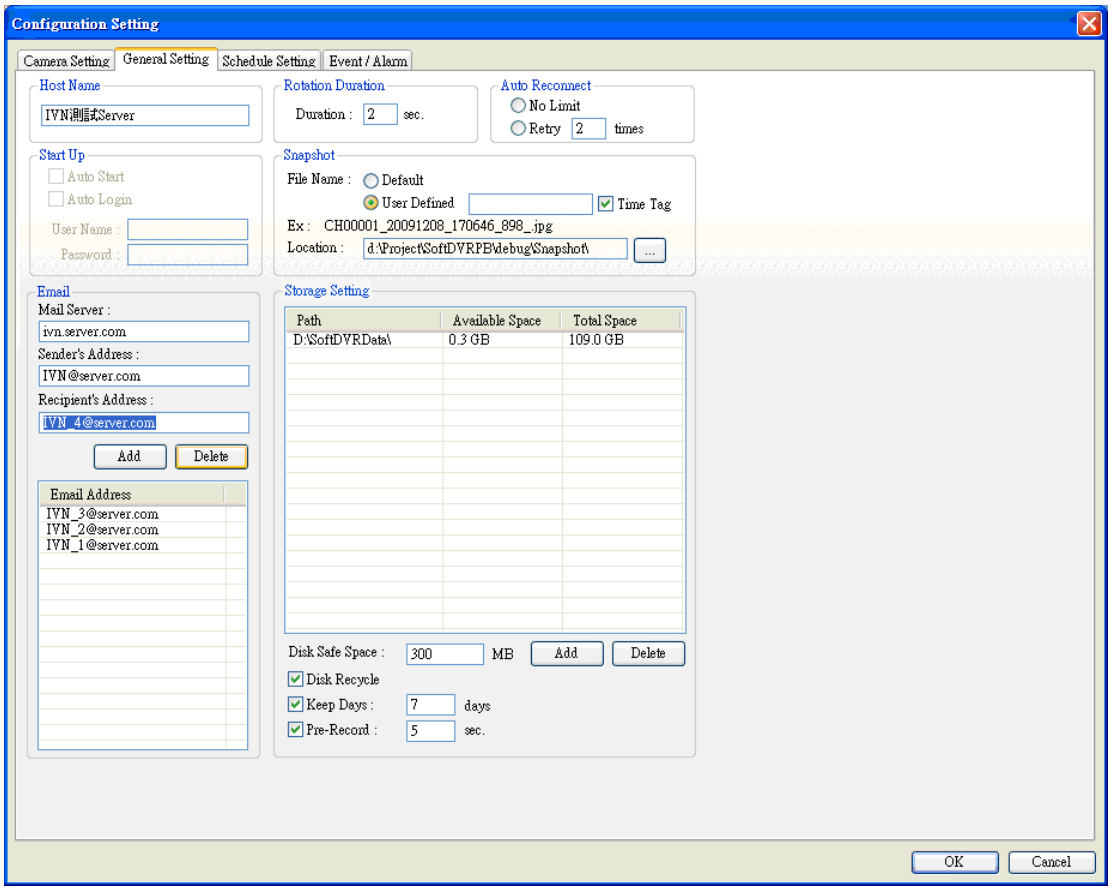
  - **Image Setting:** These settings are as same as VPort's settings, which means the VPort device's settings will be updated once you modify these settings.



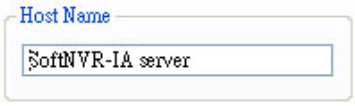
- **PTZ Setting:** These settings are as same as VPort's settings, which means the VPort device's settings will be updated once you modify these settings.



General Setting



- **Host name:** the server name of SoftNVR-IA, which will be shown on the caption of main screen window.



- **Startup:** the system startup condition

Auto start: once the server is boot up, the SoftNVR-IA will start the execution automatically.

Auto login: Once the SoftNVR-IA is executing, it will automatically login in the user name and password being listed below.

Note: This function will be supported after V1.1

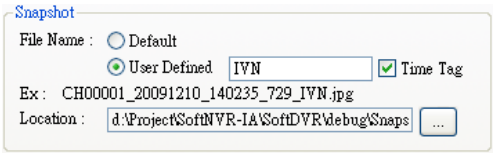
- **Email:** setup the email system to receive the system or alarm message.

Mail Server: the mail server name.

Sender's Address: the sender's email address for sending the message.

Recipient's Address: maximum 30 recipient's email can be setup to receive the message.

- **Rotation Duration:** the duration that the camera rotates to next position.
- **Auto Reconnect:** the times of reconnection can be setup in given number or unlimited.
- **Snapshot:** the snapshot image's configurations



File name: setup the file name in default name or user-defined name with time tag or not. The file name format example will be listed in below .

File name explanation :
CH00001_20091210_140235_IVN.jpg

CH00001= Channel 1

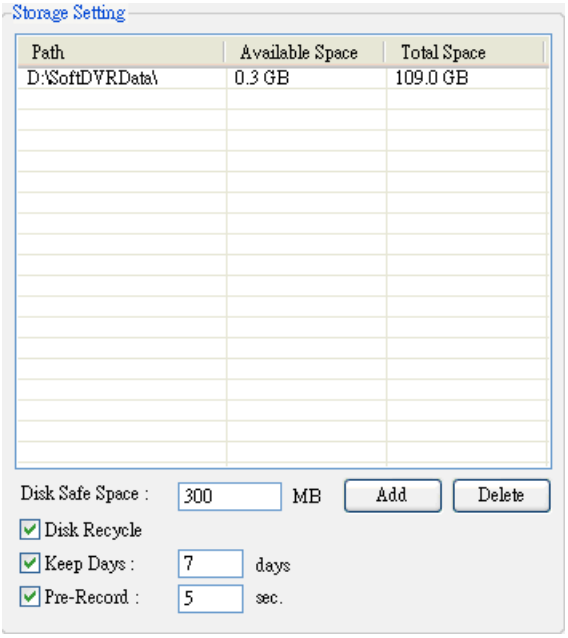
20091210 = Year 2009, December, 10th.

140235= 14 o'clock, 02 minutes, 35 seconds

IVN = user-defined name.

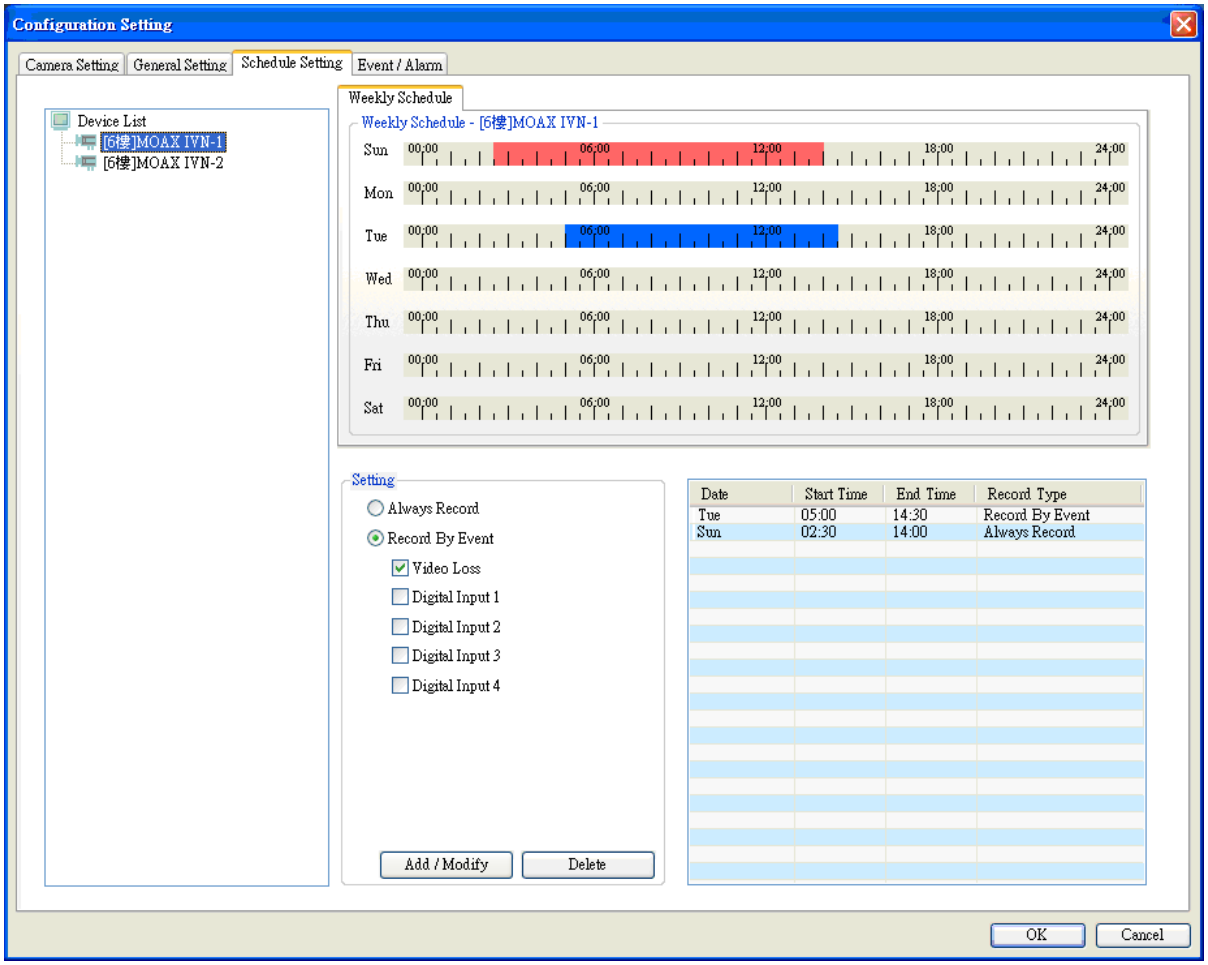
Location: the storage folder of the snapshot images

- **Storage Setting:** setup the storage settings.



Path list: the storage folder path list
Add : add the storage folder path to the list
Delete: delete the storage folder path from the list
Disk Safe Space: setup the storage disk safe space (MB) for making sure the storage system is run stably.
Disk Recycle: setup the storage disk in recycle mode to let the latest recorded video files can be stored once the storage disk is full. The oldest file will be deleted.
Keep Days: setup the days for keeping the recorded video files in the system. The video files over this Keep Days will be deleted automatically. The maximum days is 7.
Pre-Record: setup the pre-record video before an event with the given time (sec.). The time period can be setup from 5 to 30 seconds.

Schedule Setting



- Setup a schedule

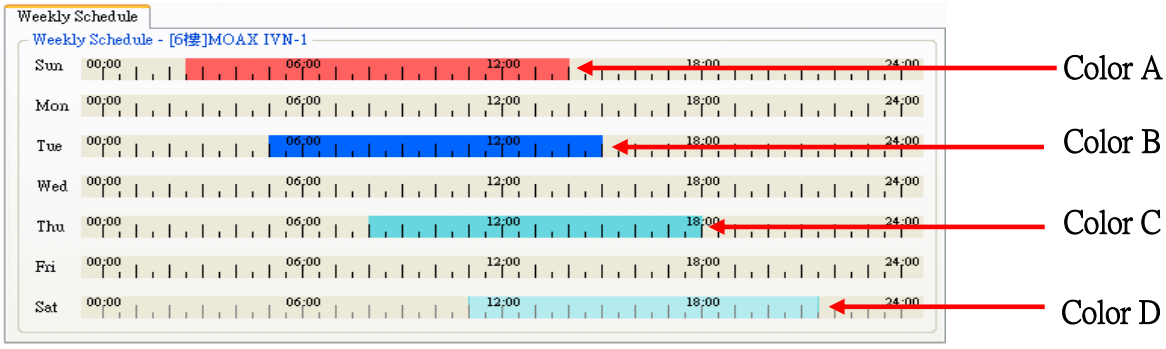
Step 1: select a device/ camera from the device list

Step 2: setup the weekly schedule

Step 3: setup the record setting

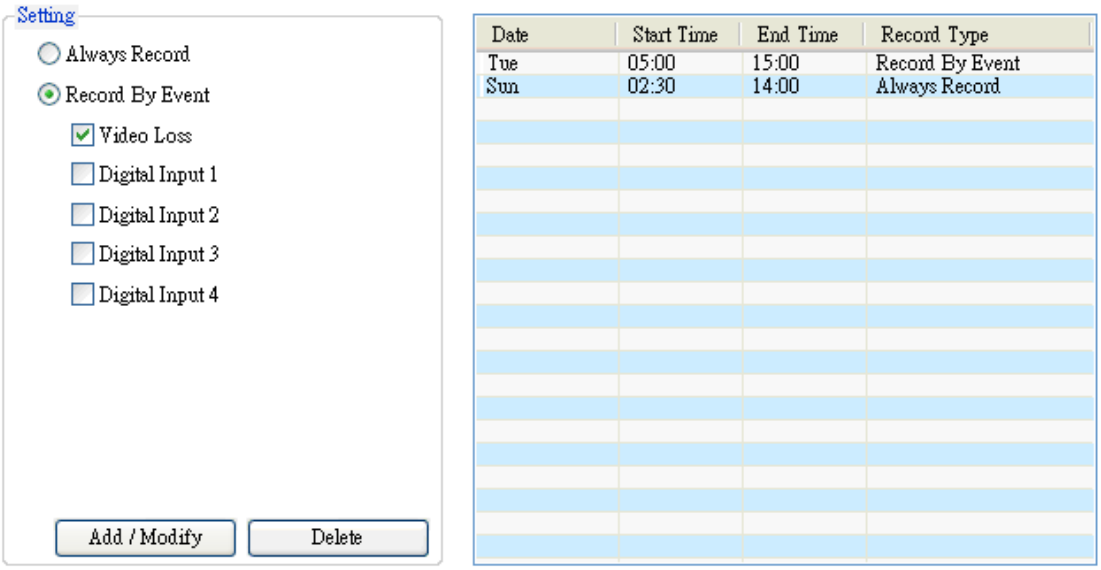
Step 4: click Add/Modify to add the schedule to the right list

- Weekly Schedule



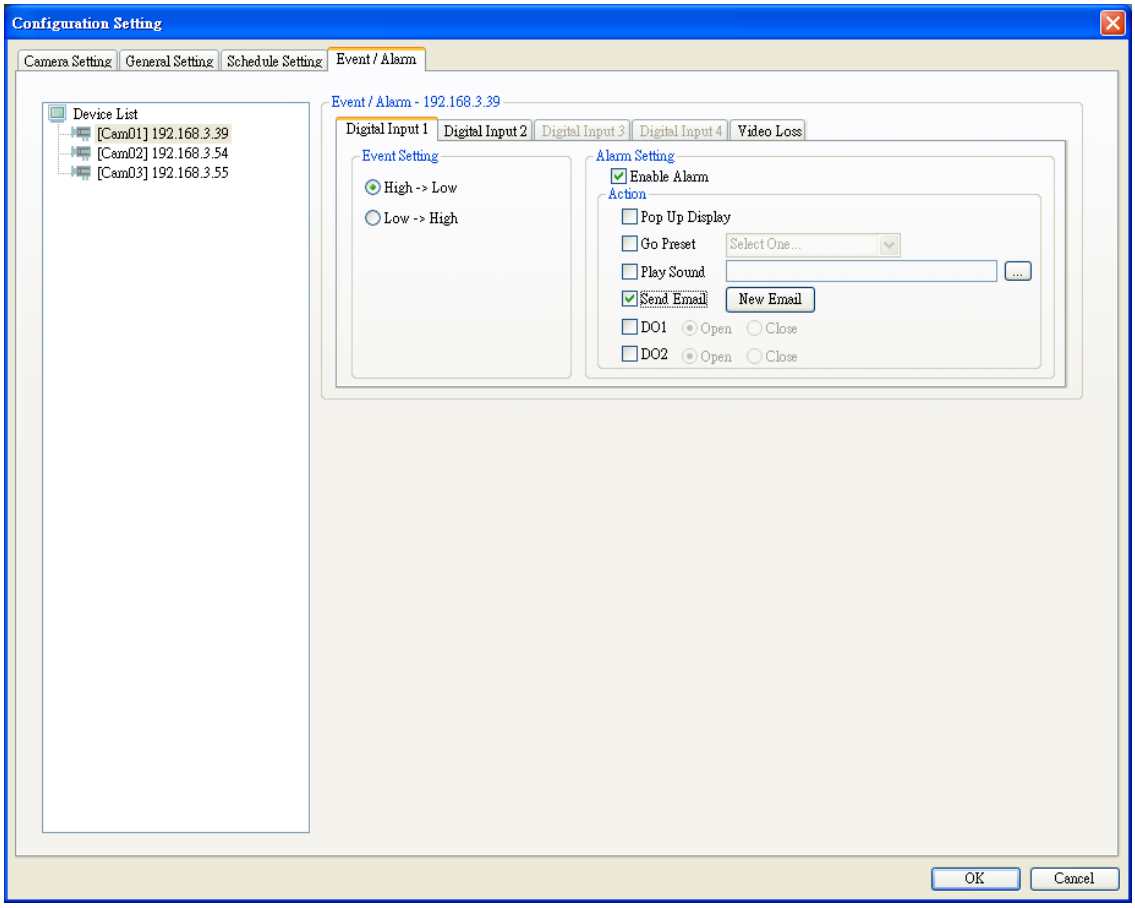
- Color A: Always record
- Color B: record by event
- Color C: mark area to add/delete/modified schedule
- Color D: drag & drop the color C again to erase marked area

- Setting



- Always Record: always do the video recording
- Record by Event: the video recording is triggered by events
- Schedule List: list the schedule that this camera is setup. Click on the Add/ Modify to add a new schedule. Click on Delete to delete a selected schedule.

Event/ Alarm



- Setup an Event/ Alarm

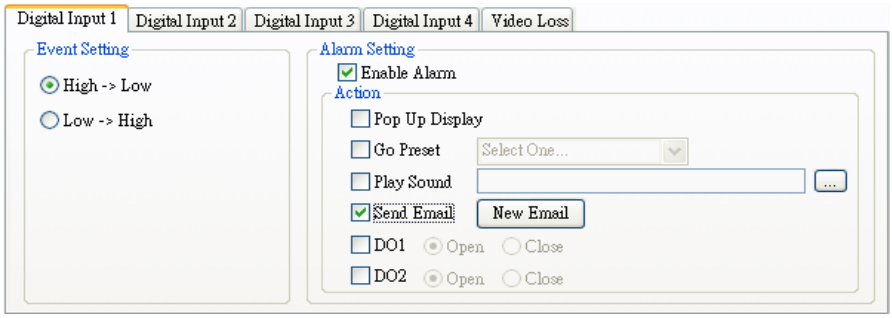
Step 1: select a device/ camera from the device list

Step 2: setup the event/ Alarm type

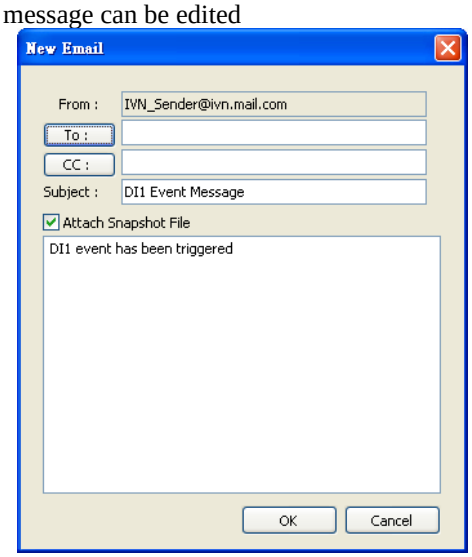
Step 3: setup the event/ Alarm action

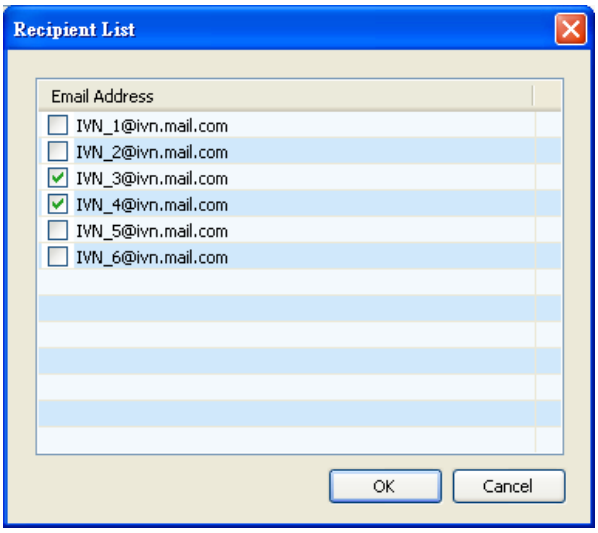
Step 4: click on OK to save the event/ alarm

- Event Type and Action



- Digital Input: setup the digital input trigger condition
- Video Loss: once the video signal is lost, the event is triggered
- Pop Up display: the video of selected camera will be pop up to full window screen once an event is triggered
- Go to preset: the camera will be moved to the preset position being selected once an event is triggered.
- Play sound: the PC or server will play the sound being selected once an event is triggered.
- Send Email: an email will be sent to the given email addresses being selected from the recipients' email list once an event is triggered. The subject, attached snapshot images, and message can be edited





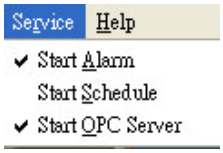
- DO1 & DO2: the DO (Relay output) will be activated once an event is triggered.

Emap setting (not available currently)

Display

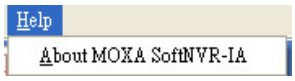
Show or hide the control or information window.

Service



- Start Alarm: enable or disable the event/ alarm detections and actions.
- Start Schedule: enable or disable the schedule
- Start OPC Server: enable or disable the OPC Server communication.

Help



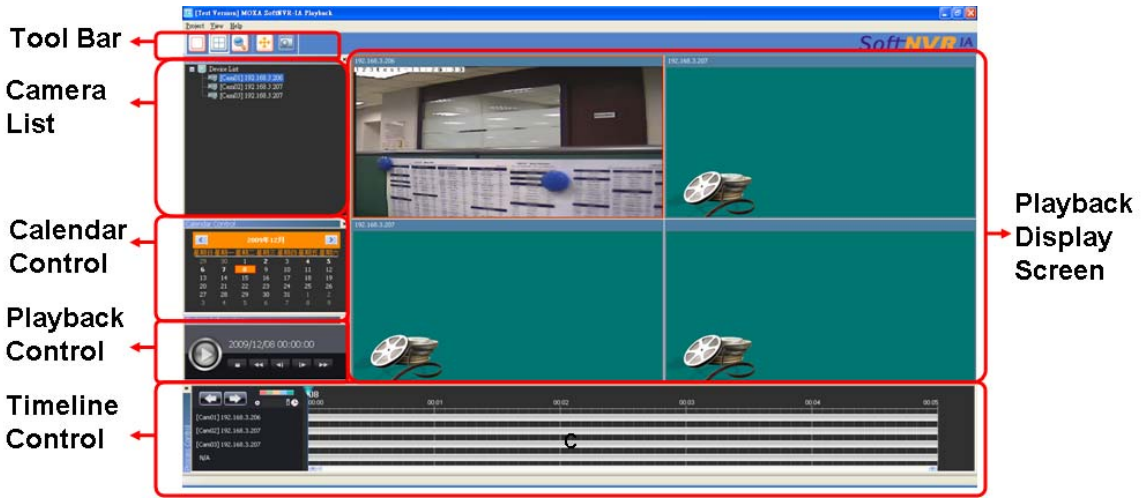
Shows the version number, company information

-

4

SoftNVR-IA™ Playback

SoftNVR-IA Playback



Tool bar

Playback video display control

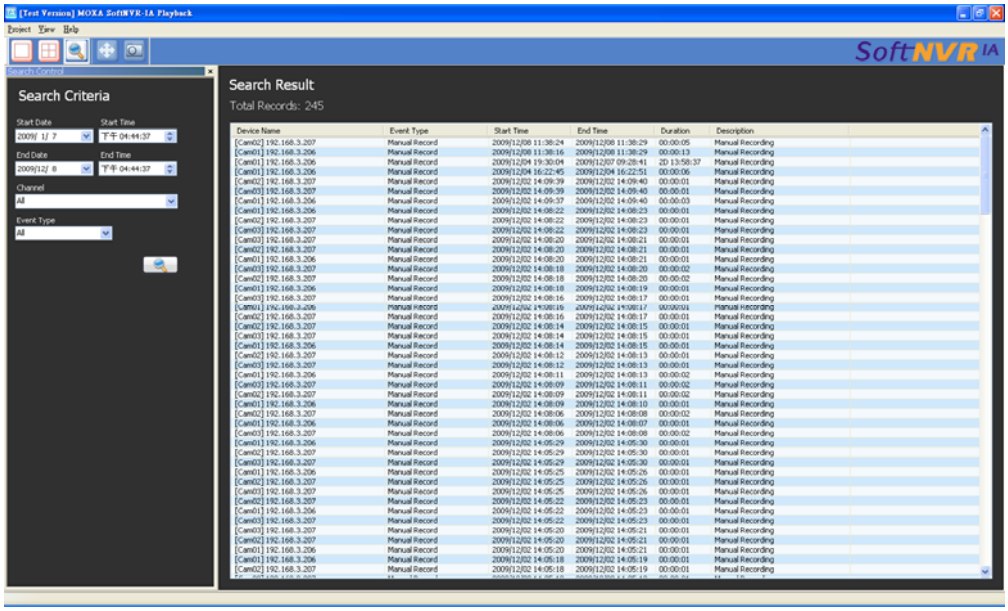
Event Search

Full Screen Display

Take snapshot image

Search the Recorded Videos

Click on Event Search button, and the Event search window will be popup.



Step 1: Setup the Start Date and Start Time

Step 2: Setup the End Date and End Time

Step 3: Select the Channel for searching the recorded videos based on the camera

Step 4: Select the Event Type for searching the recorded videos based on the event

Step 5: Click on Event Search button, then the search result will be listed in the right

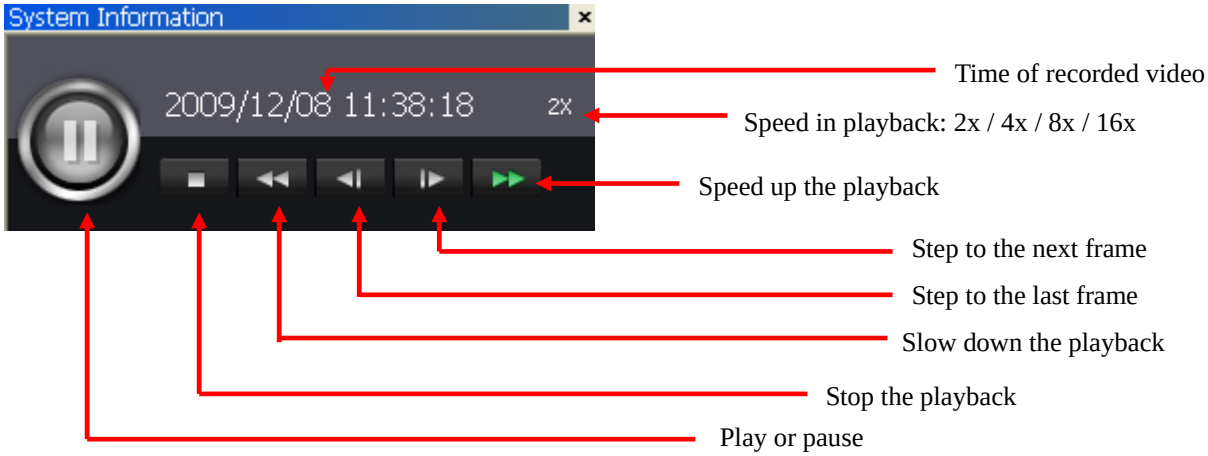
Step 6: Double click on one recorded video being searched, and the video will be showed on the playback main screen

Calendar Control

This calendar is for the information that which days have the recorded videos after the search. The user can select the day to show the recorded videos in the Timeline Control area. The date with bold word means there is recorded videos in this date, and the date with red frame means it is today. Take below's calendar as an example, it shows the 2nd, 4th, 5th, 6th, 7th and 8th of December have the recorded videos, and today is 8th, December.

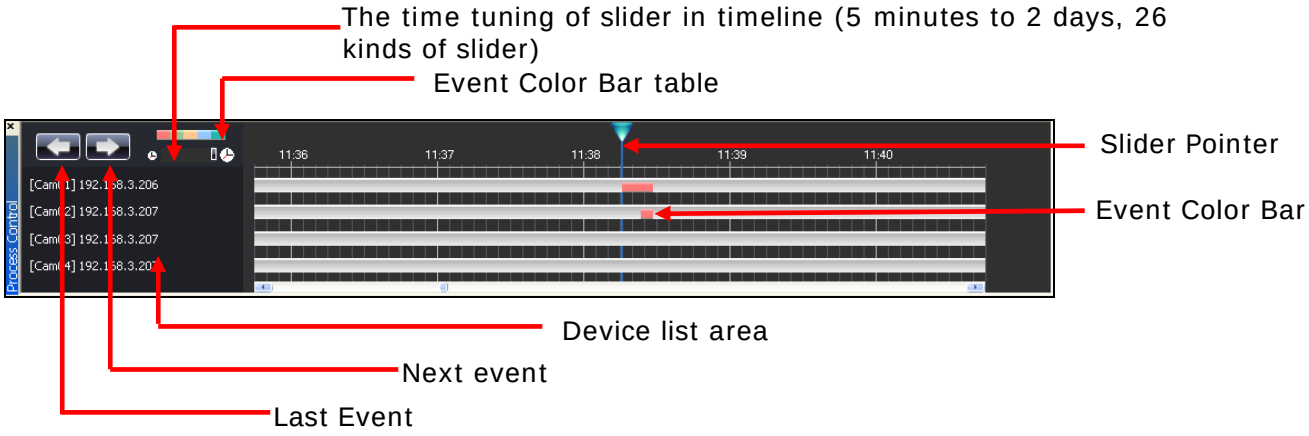
Playback Control

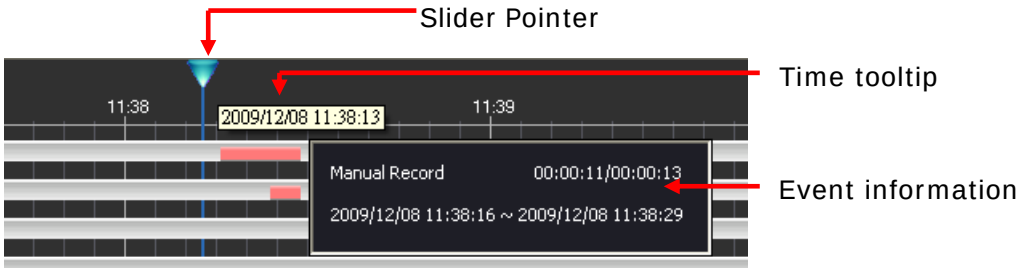
This playback control is for playing the recorded videos.



Timeline Control

The timeline control is for using the mouse to control the playback.



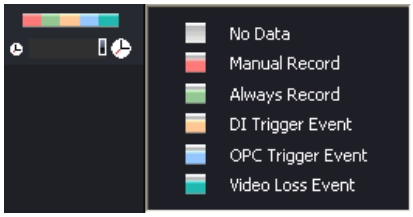


Click the right button of mouse in the event color bar will show the event information.

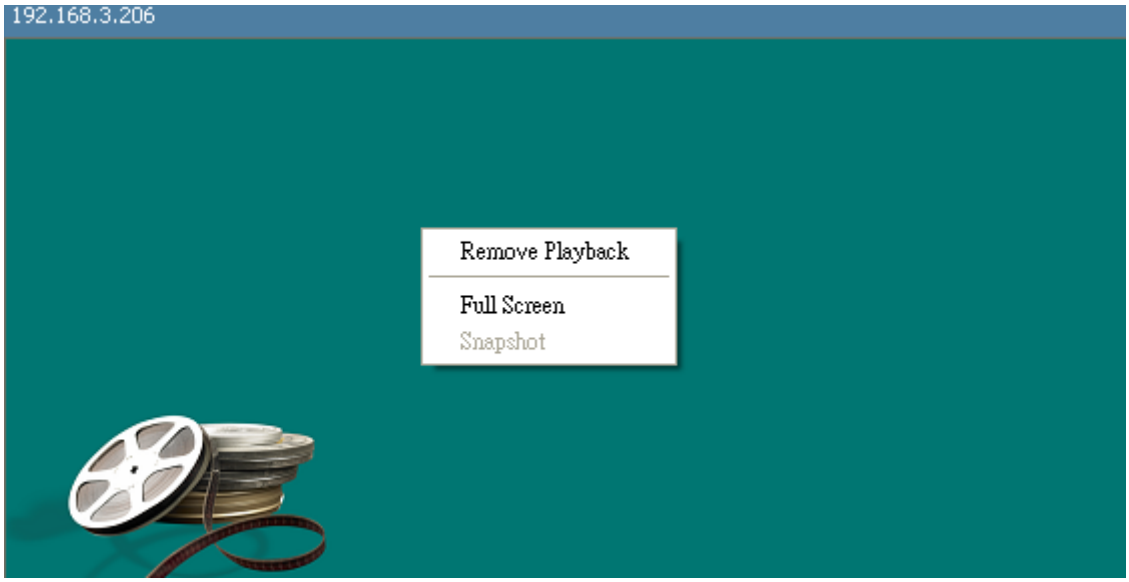
Drag the Slider Pointer in the time line will show the time of this point.

Scroll the mouse's scroller will tune the display ratio of time line.

Each kind of event will have different color being showed in time line.



Playback Display Screen



Click on the mouse's right button, a menu will be showed.

-Remove Playback: remove the camera/ device in the playback

-Full Screen: Full screen display with 1 channel or 4 channels.

-Snapshot: capture the current video image in BMP format.

5

OPC Communications

SoftNVR-IA is built-in OPC server for communicating with automation system for the device's status and event handling.

OPC Tags

NVR information

Status of SoftNVR-IA's main program (All Read-Only)

Tag Name	Type	Internal Name	Description
NVR-IA.Name	String	eNVR_NAME	SoftNVR-IA HostName
NVR-IA.IPAddress	String	eNVR_IPADDRESS	Host's IP Address
NVR-IA.TotalCH	INT	eNVR_TOTALCHANNEL	Number of current display hannels
NVR-IA.IsSchedule	BOOL	eNVR_IsSCHEDULE	Schedule is enabled or disable
NVR-IA.IsAlarm	BOOL	eNVR_IsALARM	Alarm is enabled or disabled
NVR-IA.IsDualMonitor	BOOL	eNVR_IsDUALMONITOR	Dual monitor is enabled or disabled
NVR-IA.Version	String	eNVR_VERSION	Version number

Each channel information

The status of each channel in the device list (All Read-Only)

Tag Name	Type	Internal Name	Description
NVR-IA.CHxx .Index	INT	eCAM_CAMERAINDEX	Channel index
NVR-IA.CHxx .Device_Name	String	eCAM_DEVICENAME	Device Name
NVR-IA.CHxx .Connect_Status	INT	eCAM_CONNECT_STATUS	connect status 0:connecting 1:connected 2:connect fail 3:disconnect
NVR-IA.CHxx. DI1_Status	INT	eCAM_DI1_STATUS	Di1 status
NVR-IA.CHxx. DI2_Status	INT	eCAM_DI2_STATUS	Di2 status
NVR-IA.CHxx. DI3_Status	INT	eCAM_DI3_STATUS	Di3 status
NVR-IA.CHxx. DI4_Status	INT	eCAM_DI4_STATUS	Di4 status

NVR-IA.CHxx. DI5_Status	INT	eCAM_DI5_STATUS	Di5 status
NVR-IA.CHxx. DI6_Status	INT	eCAM_DI6_STATUS	Di6 status
NVR-IA.CHxx. DI7_Status	INT	eCAM_DI7_STATUS	Di7 status
NVR-IA.CHxx. DI8_Status	INT	eCAM_DI8_STATUS	Di8 status
NVR-IA.CHxx. DO1_Status	INT	eCAM_DO1_STATUS	Do1 status
NVR-IA.CHxx. DO2_Status	INT	eCAM_DO2_STATUS	Do2 status
NVR-IA.CHxx. DO3_Status	INT	eCAM_DO3_STATUS	Do3 status
NVR-IA.CHxx. DO4_Status	INT	eCAM_DO4_STATUS	Do4 status
NVR-IA.CHxx. Video_Loss	INT	eCAM_VIDEO_LOSSs	Video loss
NVR-IA.CHxx.FPS	INT	eCAM_FPS	Frame per seconds
NVR-IA.CHxx. Stream_Type	INT	eCAM_STREAM_TYPE	The type of video stream (H.264, MJPEG or MPEG4)
NVR-IA.CHxx .Server_Channel	INT	eCAM_SERVER_CH_ID,	Video Encoder's Channel ID
NVR-IA.CHxx. IsAudioPost	BOOL	eCAM_IsAUDIOPOST,	Audio post is enabled or disabled
NVR-IA.CHxx. IsRecord	BOOL	eCAM_IsRECORD,	Video recording is enabled or disabled.
NVR-IA.CHxx. IPAddress	String	eCAM_IPADDRESS,	VPort's IP address
NVR-IA.CHxx. Username	String	eCAM_USERNAME,	VPort's connection's Username
NVR-IA.CHxx. Password	String	eCAM_PASSWORD,	VPort's Connection's Password
NVR-IA.CHxx. Reserved1	String	eCAM_RESERVED1,	reserved
NVR-IA.CHxx. Reserved2	String	eCAM_RESERVED2,	reserved
NVR-IA.CHxx. Reserved3	String	eCAM_RESERVED3,	reserved
NVR-IA.CHxx. Reserved4	String	eCAM_RESERVED4,	reserved

Event trigger operation

Trigger actions and messages of each channel from OPC client (Read/write)

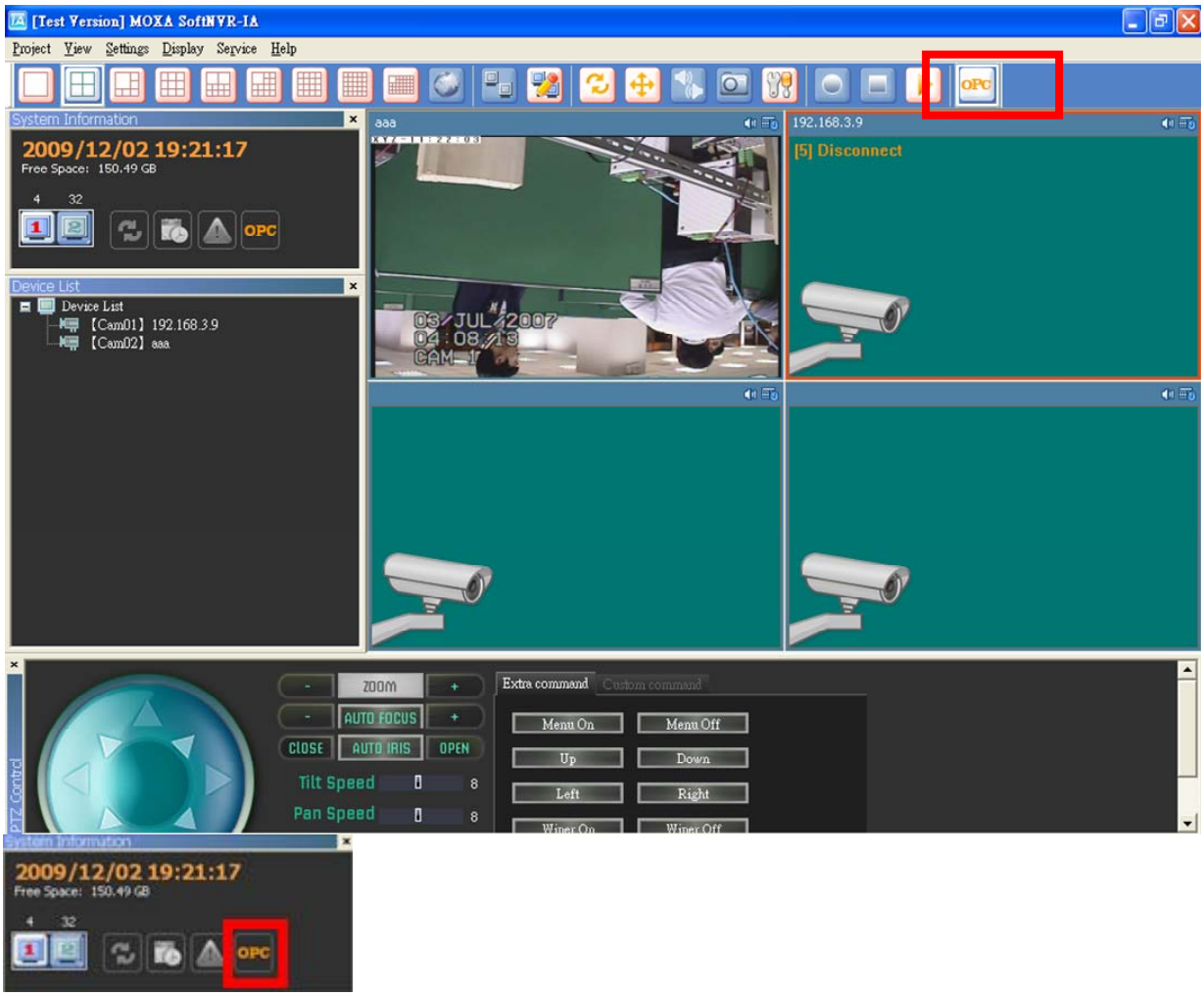
Tag Name	Type	Internal Name	Description
NVR-IA.CHxx. Event.Trigger	INT	eEVENT_TYPE	Trigger video recording 0:stop 1:rec+pop up

			2:rec 3:pop up
NVR-IA.CHxx Message	String	eEVENT_DESCRIPTION	description

OPC Trigger with Video Pop-up

Step by Step for Video pop-up trigger by OPC client

Step 1: Enable Build-in OPC Server

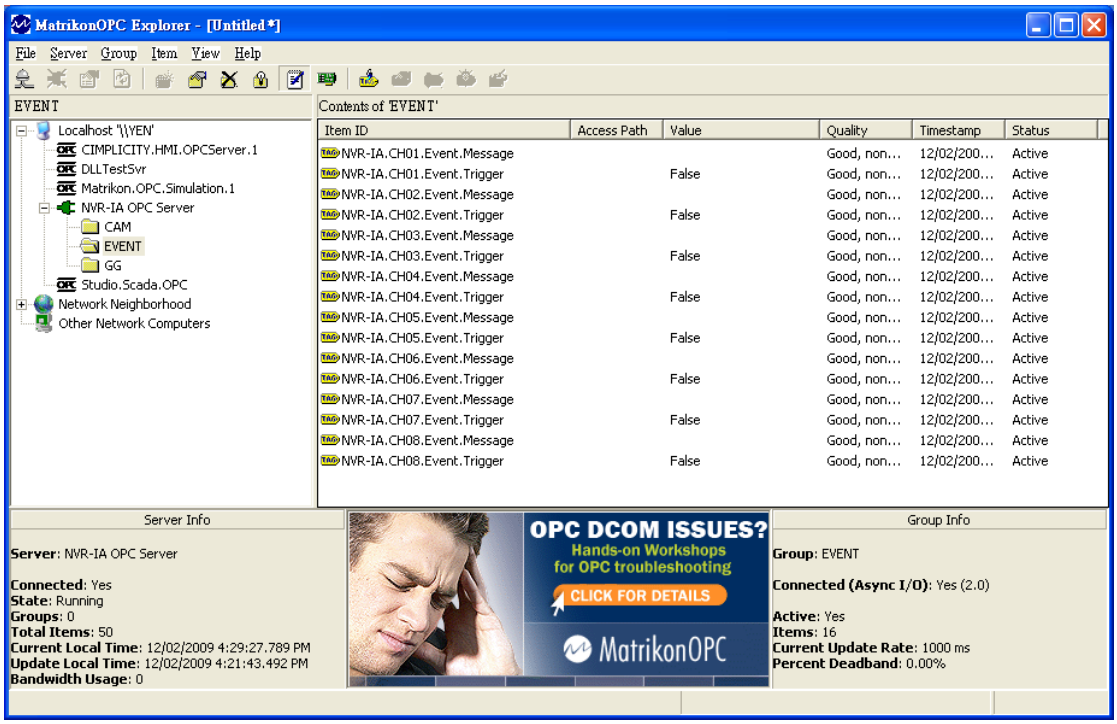


Once the OPC server is enabled, the OPC in the system information will be highlighted.

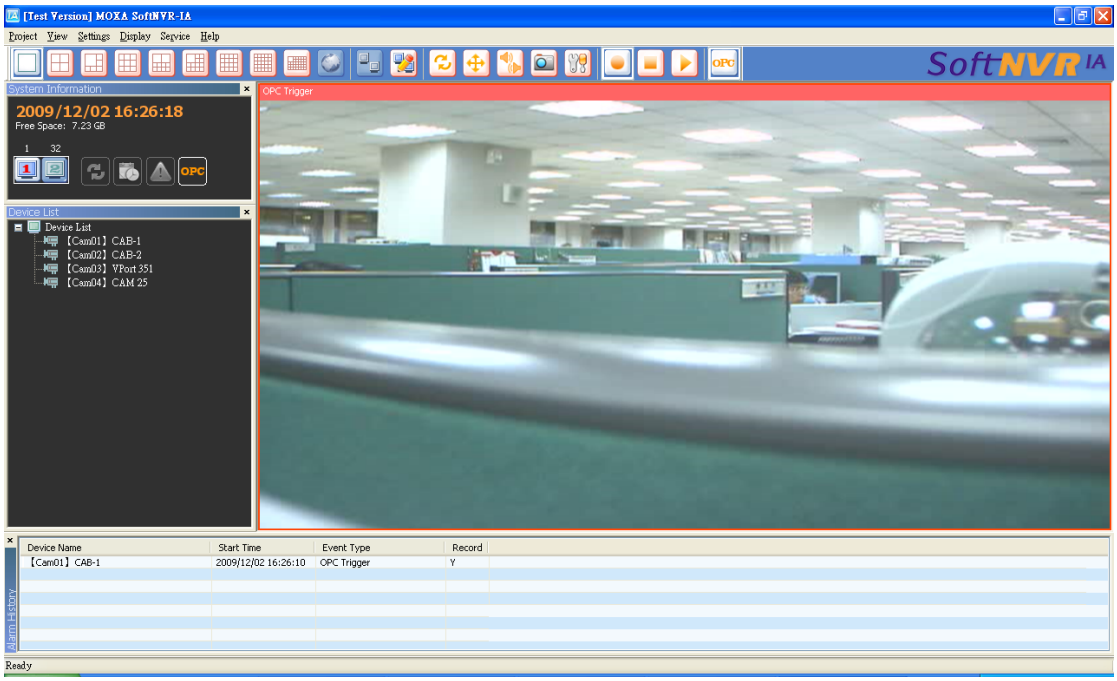
Step 2: OPC Client Tag Trigger

Set NVR-IA.CH01.Event.Message = ”From OPC Tag Trigger test”

Set NVR-IA.CH01.Event.Trigger = 1

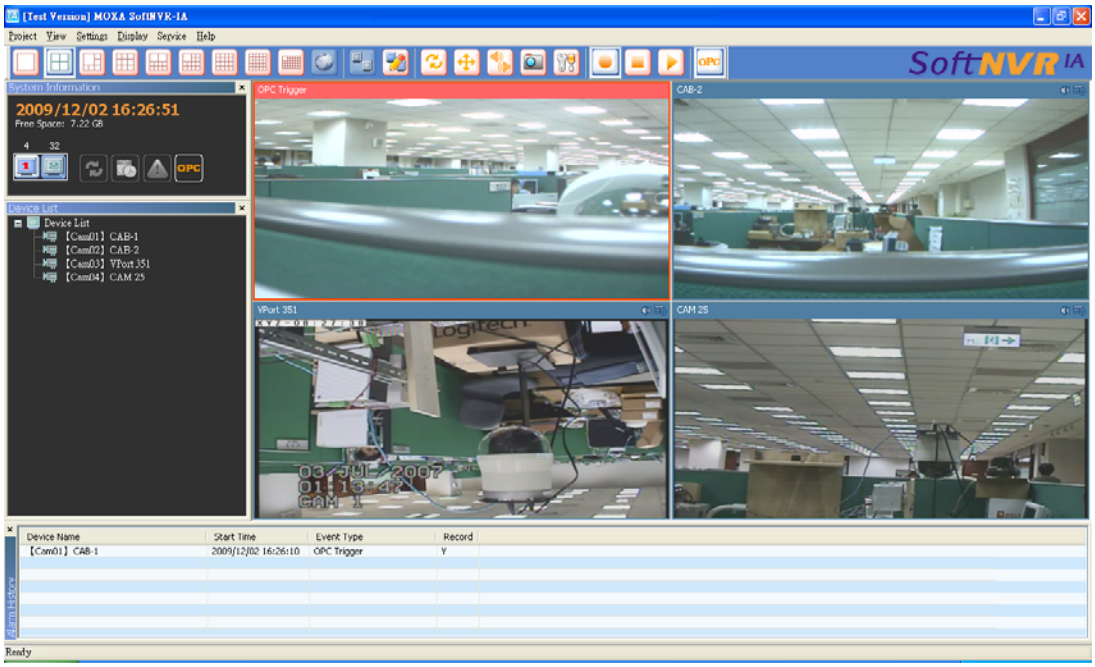


Step 3: Once SoftNVR-IA receives a trigger from OPC Client, the SoftNVR-IA will be changed to 1 camera video screen and the target video will be pop-up in the screen when in multiple video screen display. The caption will be flashed in a red frame with the OPC Trigger word.



Step 4: In alarm history, this OPC event will be added to the list with time, and the video recording

action will also be enabled for the configured video channels.



Step 5: To disable this OPC Trigger, click on the mouse's right button on the video image and select the "Alarm Confirmed" in the this menu.

Step 6: the video recording action can also be stopped by un-checking "Manual Record" item.